

## **ABSTRACT**

The present invention includes a data storage device and a method of reading data in a data storage device. Accordingly, a first aspect of the present invention is a data  
5 storage device. The data storage device includes a probe tip mounted on a suspension mechanism, a data storage layer, at least one conducting layer wherein a capacitance is formed between the suspension mechanism and the at least one conducting layer and a sensor for sensing a change in the capacitance based on a displacement of the probe tip due to the presence of a bit.